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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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WAGNER, MURABITO & HAO LLP
Third Floor
Two North Market Street
San Jose, CA 95113

EXAMINER	
NGUYEN, HANH N	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/772,110	GOSSETT, CARROLL PHILIP	
	Examiner	Art Unit	
	Hanh Nguyen	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Application filed on 06/08/04* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,5-8,10,13,15,17,21-23 and 25-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,5-8,10,13,15,17,21-23 and 25-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 13, 17, 25, 29 and 30 are rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Menich et al.** (US Pat. No. 6,449,305 B1).

In claim 3, 13 and 25, **Liu** discloses a CDMA transmitter (CDMA transceiver, Fig.2) comprising a CDMA baseband modulator 42(1) which modulates input data signal $S_1(k)$ in one single step by a Hadamard processor 100 (modulating data in one single step by a Hadamard function). See col.6, lines 27-50 & line 65 to col.7, line 4. The Hadamard processor performs a Fast Hadarmad transform on the input signal from an input buffer 100 to produce output signal comprises rows and columns (Hadamard function having PN shuffled rows or columns). See col.8, lines 33-40. Even though the Hadarmad processor of **Liu** does not explicitly disclose the the data is modulated by Hadamard function having pseudorandomly shuffled rows or columns. It is inherent and well-known in the art that the input transform of Hadarmad processor must shuffles rows or collumns. **Menich et al.** discloses, in Fig.3, a CDMA transmitter 300 comprising an interleaver 316 (shuffle means). The interleaver 316 interleaves (shuffles) input data symbol 314 such that data symbols 314 are input into column by column within a Hadarmad matrix; and output from the matrix in a row by row manner (a matrix having shuffled rows or

columns). See col.4, lines 10-20. The matrix is a square matrix and can be any other kinds such as Hadamard to increase the output of interleaving (see col.4, lines 20-25).

Therefore, it would have been obvious to one ordinary skill in the art to use the interleaver of **Menich et al.** into the **Liu** in order to shuffle rows or columns in a square matrix and modulate data in one step. The motivation is to protect transmitted data from being intercepted by other receiver. The purpose of using the interleaver 316 is to mix or shuffle transmitted data so that only desired receiver can be able to demodulate and recognize the received data.

In claims 17 and 29, **Liu** discloses the CDMA transmitter modulating each signal by a PN code. Therefore, this is a code division duplex operation. See col.6, lines 52-60.

In claim 30, **Liu** does not specifically disclose transmitting baseband signal for peer-to-peer cellular communication. **Menich et al.** discloses, in Fig.3, a CDMA transmitter 300 in a base station transmitting a signal 310 to a remote unit (transmitting baseband signals for peer-to-peer cellular communications). See col.3, lines 55-60. Therefore, it would have been obvious to one ordinary skill in the art to apply the method of **Menich et al.** into the **Liu** for transmitting baseband data between peer (base station) and peer (remote unit) in the cellular communications.

Claims 6, 15 and 28 are rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Menich et al.** (US Pat. No. 6,449,305 B1), and further in view of **Brandt et al.** (US Pat. N0. 6,507,573 B1).

In claims 6, 15 and 28, **Liu and Menich et al.** do not disclose the base band signal is spreaded across DC to 30 MHz. **Brandt et al.** disclose, in Fig.2, a user terminal 6 transmits data in a frequency up to 30 MHz using direct sequence spread spectrum method (base band signal is spreaded across DC to 30 MHz). See col.6, lines 45-50. Therefore, it would have been obvious to one ordinary skill in the art to use the method of **Brandt et al.** for spreading the baseband modulated signal in **Liu** up to 30 MHz for the benefits of transmitting strong signals with high overall output power, improving signal to noise ratio as well as signal quality.

Claims 5 and 27 are rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Menich et al.** (US Pat. No. 6,449,305 B1), and further in view of **Zuckerman** (US Pat. No. 5,169,912 B1).

In claim 5, **Liu and Menich** do not disclose actively servoing a transmit signal to cancel the transmit signal from a receive signal. **Zuckerman** disclose, in Fig.6, a servo integrator 96 controls combiner 100 to remove the transmit signal and keeps the desired received signal (servoing a transmit signal to cancel the transmit signal from a receive signal). See col.9, line 47 to col.10, line 5. Therefore, it would have been obvious to one ordinary skill in the art to use servo integrator 96 of **Zuckerman** with **Liu** 's transmission system to cancel transmit signal from the received signal for a purpose of reducing interference; and provide full duplex capabilities over the same antenna that receives and transmits data signals.

In claim 27, **Liu and Menich** do not disclose actively servoing a transmit signal to cancel the transmit signal from a receive signal. **Zuckerman** disclose, in Fig.6, a servo integrator 96 controls combiner 100 to remove the transmit signal and keeps the desired received signal

(servoing a transmit signal to cancel the transmit signal from a receive signal). See col.9, line 47 to col.10, line 5. Therefore, it would have been obvious to one ordinary skill in the art to use servo integrator 96 of **Zuckerman** with **Liu** 's transmission system to cancel transmit signal from the receive signal for a purpose of reducing interference; and provide full duplex capabilities over the same antenna that receives and transmit data signals.

Claims 21 and 23 are rejected under 35 USC 103(a) as being unpatentable over **Gilhousen** (US Pat. No. 6,185,246 B1) in view of **Liu** (US Pat. No. 5,864,548), and further in view of **Zuckerman** (US Pat. No. 5,169,912 B1).

In claim 21, **Gilhousen** discloses, in Fig.4, a transmitter 170 receiving baseband data signals. The baseband data signals are modulated by a set of orthogonal PN sequences provided by orthogonal PN sequence generator 160 (modulating a data signal with an orthogonal pseudo random code). See col.13, lines 52-60. The modulated baseband signals is transmitted by a RF transmitter 174 as direct sequence spread spectrum signals (transmitting the data signal as baseband direct sequence spread spectrum). See col.14, lines 1-14. **Gilhousen** does not explicitly disclose the modulation is performed with no additional modulation; and actively servoing a transmit signal to cancel the transmit signal from a receive signal. **Liu** discloses a CDMA transmitter (CDMA transceiver, Fig.2) comprising a baseband modulator 42(1) which modulates input data signal $S_1(k)$ in one single step by using Hadamard processor before transmitting at transmitter 32 (modulating data in one single step only and with no additional modulation step). See col.6, lines 27-50 & line 65 to col.7, line 4. **Zuckerman** disclose, in Fig.6, a servo integrator 96 controls combiner 100 to remove the transmit signal and keeps the desired received signal

(servoing a transmit signal to cancel the transmit signal from a receive signal). See col.9, line 47 to col.10, line 5.

Therefore, it would have been obvious to one ordinary skill in the art to use servo integrator 96 of **Zuckerman** with **Gilhousen** 's transmission system to cancel transmit signal from the reseive signal for a purpose of reducing interference; and provide full duplex capabilities over the same antenna that receives and transmit data signals. Secondly, the one step modulation method of **Liu** is combined with the data modulation in **Gilhousen** is to perform the data modulation in only one step with no additional modulation step. The motivation is to broadcast baseband direct sequence spread spectrum signals without being intercepted by undesired receiver because each data signal is modulated by a PN code.

In claim 23, **Gilhousen** disclose, in Fig.1, cellular telephone at mobile units 16 communicating baseband signals via links 20A, 20B to cell site 12(full duplex baseband direct sequence spread spectrum). See col.4, lines 24-30 & 35-40.

Claim 22 is rejected under 35 USC 103(a) as being unpatentable over **Gilhousen** (US Pat. No. 6,185,246 B1) in view of **Liu** (US Pat. No. 5,864,548), in view of **Zuckerman** (US Pat. No. 5,169,912 B1), and further in view of **Brandt et al.** (US Pat. N0. 6,507,573 B1).

In claim 22, **Gilhousen, Liu and Zuckerman** do not disclose the base band signal is spreaded across DC to 30 MHz. **Brandt et al.** disclose, in Fig.2, a user terminal 6 transmit data in a frequency up to 30 MHz using direct sequence spread spectrum method (base band signal is spreaded across DC to 30 MHz). See col.6, lines 45-50. Therefore, it would have been obvious to one ordinary skill in the art to spread the baseband modulated signal in **Gilhousen** up to 30 MHz

for the benefits of transmitting strong signals with high overall output power, improving signal to noise ratio as well as signal quality.

Claim 26 is rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Menich et al.** (US Pat. No. 6,449,305 B1), in view of **Gilhousen** (US Pat. No. 6,185,246 B1), and further in view of **Krylov et al.** (US Pat. No. 6211828 B1).

In claim 26, **Liu and Menich** do not disclose a D/A converter; antenna is at least ten time shorter than the wavelength of the signal. **Gilhousen** discloses, in Figures 4 & 5, a digital to analog D/A converter 280i (see Fig.5) for converting from digital data into analog data (D/A converter converts digital data into analog data) before transmitting at RF transmitter 174 (Fig.4); See col.16, lines 42-50 & col.14, lines 5-12. **Krylov et al.** discloses a mobile phone having an antenna whose length is a quarter of wavelength of the signal (antenna is four time shorter than the wavelength of the signal). See col.1, lines 10-15. Therefore, it would have been obvious to one ordinary skill in the art to implement the D/A converter of **Gilhousen** and the antenna having a length of at least ten time shorter than the wavelength of signal into the transmission system of **Liu.** The motivation is to convert digital signal into analog before transmission and having short or mismatched antenna that transmit baseband signal.

Claims 7 and 10 are rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Krylov et al.** (US Pat. No. 6211828 B1).

In claim 7, **Liu** does not disclose an antenna that is at least ten time shorter than the wavelength of the signal. **Krylov et al.** discloses a mobile phone having an antenna whose length is a quarter of wavelength of the signal (antenna is four times shorter than the wavelength of the

signal). See col.1, lines 10-15. Even though the antenna is not at least ten times shorter than the wavelength, but it would have been a well-known skill in the art to made an antenna in accordance to the claimed limitation which is at least ten times shorter than the wavelength of the signal. Therefore, it would have been obvious to one ordinary skill in the art to design the antenna in **Liu** 's transmission system that is at least ten times shorter than the wavelength of the signal. The motivation is to have a short/ mismatched antenna for transmitting baseband direct sequence spread spectrum and boot the weak baseband signal by using amplifier.

In claim 10, **Liu** discloses the CDMA transmitter modulating each signal by a PN code. Therefore, this is a code division duplex operation. See col.6, lines 52-60.

Claim 8 is rejected under 35 USC 103(a) as being unpatentable over **Liu** (US Pat. No. 5,864,548) in view of **Krylov et al.** (US Pat. No. 6211828 B1), and further in view of **Chadwick et al.** (US Pat. No. 6,005,891).

In claim 8, **Liu and Krylov** do not disclose the antenna is driven mismatched. **Chadwick et al.** discloses a spread spectrum receiver that determine an impedance mismatched of an antenna (antenna is mismatched). See col.1, lines 35-55. Since **Chadwick et al.** refers to a spread spectrum receiver using PN code generator 30 (see Fig.1), therefore; it would have been obvious to one ordinary skill in the art to implement the mismatched antenna of **Chadwick et al.** into the antenna of **Liu** so that the antenna is mistmatched. The motivation is to boot the weak baseband signal by using amplifier.

Response to Arguments

Applicant's arguments that neither Liu nor Menich et al. does not disclose modulating data by PN shuffled rows or columns.

Examiner believes the Hadamard processor 100 of Liu performs a Fast Hadarmad transform on the input signal from an input buffer 100 to produce output signal comprises rows and columns (Hadamard function having PN shuffled rows or columns). See col.8, lines 33-40. The transforms of input signal to produce output signal performed by Fast Hadarmad processor is well-known in the art to be understood that data is shuffled through a matrix even though the Hadarmad processor of **Liu** does not explicitly disclose the the data is modulated by Hadamard function having pseudorandomly shuffled rows or columns. **Menich et al.** discloses, in Fig.3, a CDMA transmitter 300 comprising an interleaver 316 (shuffle means). The interleaver 316 interleaves (shuffles) input data symbol 314 such that data symbols 314 are input into column by column within a Hadarmad matrix; and output from the matrix in a row by row manner (a matrix having shuffled rows or columns). See col.4, lines 10-20. The matrix is a square matrix and can be any other kinds such as Hadamard to increase the output of interleaving (see col.4, lines 20-25).

To provide more supports, Dabak et al. (US Pat. 6,594,473 B1) discloses, in Fig.1, a shuffling technique performed by an interleaver 15 (shuffler) in a transmitter 12. The interleaver 15 receives bits inputted into a matrix by a row -by- row fashion and outputs theses bits from the matrix by column by column fashion. The shuffled symbols is sent to modulator 18 for modulating. See col.3, lines 45-50.

Therefore, examiner decides to maintain the rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 703 306-5445. The examiner can normally be reached on Monday-FRiday from 8AM to 4:30PM. The examiner can also be reached on alternate

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached on 703 305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hanh Nguyen

August 12, 2004